APPLICATION

For

UNITED STATES LETTERS PATENT

Filed by

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SPECIFICATION

TO ALL WHOM IT MAY CONCERN, BE IT KNOWN THAT,

John Buiatti, a citizen of the United States of America, has invented certain new and useful improvements in a

NURSING AID SYSTEM

of which the following is a specification:

Cross Reference to Related Applications, if Any

None

Background of the Invention and Prior Art

The present invention relates to systems for assisting mothers to naturally breast feed babies. Mothers have often encountered pain from babies who pinch or bite their nipples during natural breast feeding. Breast shields have been designed to alleviate this common problem through the use of a flexible breast and nipple cover of sufficient thickness to substantially reduce

flexing of the nipple portion and resultant pain encountered when breast feeding a biting baby. These breast shields effectively cover but do not extend the natural nipple and therefore fail to address the problem and frustration experienced by those mothers and their children who have not been able to effectively breast feed due to insufficient length, usually temporary, of the mother's nipple and resulting inability of the baby to effectively grasp it in its mouth for suckling.

Object of the Invention

It is the primary object of the present invention to provide a nursing aid system which alleviates the above problem.

Summary

Disclosed herein is a nursing aid system which includes at least one breast cup and at least one nipple extender which may be a separate part or which may be integrally formed with the breast cup. The breast cup has a concave breast receiving portion and a hollow generally cylindrical nipple receiving portion located on and projecting away from the breast receiving portion, the nipple receiving portion having a remote end which includes at least one milk delivery aperture which may be normally open or closed. The nipple extender may be integrally formed with or may be slidably received or otherwise positioned in the nipple receiving portion of the breast cup and has an axial length less than the length of the nipple receiving portion. The nipple extender is configured to provide at least one channel for conducting flow of milk from the mother's nipple to the milk delivery aperture and preferably occupies most of the space in the

nipple receiving portion of the breast cup which is not occupied by a mother's nipple.

Although the system is designed to alleviate problems frequently encountered by humans, the teachings herein are not necessarily limited to human nursing.

Brief Description of the Drawings

Figure 1 is a schematic side elevation view, partly in cross section, of a nursing aid system pursuant to the invention comprised of a nipple cup and separately formed nipple extender.

Figure 2 is a front elevation view of the system of Fig. 1.

Figure 3 is a perspective view of a presently preferred embodiment of a nipple extender showing a generally convex front end.

Figure 4 is a perspective view of the presently preferred embodiment of a nipple extender of Fig. 3 showing a generally concave rear end.

Figure 5 is a schematic side elevation view showing a series of nipple cups having nipple portions of progressively reduced length.

Figure 6 is a side elevation view of a second embodiment of a nipple extender for use in the system of Fig. 1.

Description of the Preferred Embodiments

Fig. 1 depicts a breast cup 10 comprised of a generally concave breast receiving portion 12 having an integrally formed nipple portion 14 terminating in an end wall 16. The end is provided with a normally closed milk delivery aperture, such as a slit or crossed slits 18

preferably located in the end wall 16 as seen in Fig. 2. The entire breast cup 10 may be formed of flexible elastomeric material having a uniform wall thickness although the breast cup 1 may be configured with a variable wall thickness if desired. The flexible elastomeric material may be a silicone, latex or polyurethane material or mixtures thereof and may have a Shore A durometer hardness in the preferred range of 35-80. Those skilled in the art will readily understand that the flexibility of the breast cup 10 will depend not only upon the material and hardness but also upon the wall thickness, all of the properties being selected to insure that the cup may be comfortably retained against the breast and flexed to conform generally to the human breast configuration.

To accommodate human breasts having nipples of various natural lengths, one or more nipple extenders 20 of various sizes may be provided. A single nipple extender may be integrally formed with the breast cup or a number of separately fabricated nipple extenders may be provided in differing lengths, preferably all sized to be slid into and frictionally retained inside the nipple receiving portion 14 of the cup 10. Fig. 1 depicts the nipple extender 20 as a part separate form the cup 10 but those skilled in the art will understand that the nipple receiving portion 14 of the breast cup 10 shown in Fig. 1 can easily be fabricated with an increased wall thickness and centrally extending milk delivery passageway to effectively integrate the nipple extender 20 and cup 10. The integrally formed extender or separately formed extenders 20 should be sized and configured to occupy most and preferably substantially all space in the nipple receiving portion 14 of the cup 20 which would not ordinarily be occupied by a human nipple so

as to accommodate natural nipples of different lengths and minimize the amount of air which must be first be ingested by a suckling infant before milk is delivered.

Figs. 3 and 4 show a first presently preferred embodiment of nipple extender 20 of generally cylindrical configuration having a rounded or hemispherical convex front end 22 as seen in Fig. 3 and a rear end 24 which preferably is configured with slight concavity as seen in Fig. 4. In this embodiment, at least one flow conducting groove 26 is provided. Preferably a series of peripherally spaced protuberances in the form of lands on the annular exterior surface of the extender 20 which engage the inside of the nipple receiving portion of the breast cup 10 provide a series of flow conducting grooves 26 between the lands for the flow of milk along the exterior of the nipple extender from the rear end 24 to the front end 22. The groove or grooves 26 terminate proximate the milk delivery aperture which, in the preferred embodiment shown, is a normally closed aperture formed by crossed slits 18. The inherent resilience of the breast cup 10 and the wall thickness of the nipple end wall 16 is selected to insure that suction provided by a nursing infant will easily open the flow conducting aperture in the end 16 in the nipple portion of the cup to conduct milk to the baby's mouth. The preferred configuration of nipple extender shown in Figs. 3 and 4 with lengthwise extending grooves 26 on the annular surface of the nipple extender insures that the nipple extender 20 and grooves 26 can be easily and thoroughly cleaned when removed from the cup 10 and that air space in the cup 10 is also minimized to reduce the amount of air which must be ingested by the baby prior to drawing of milk through suckling.

Although the presently preferred embodiment of nipple extender 20 may be configured as shown in Figs. 3 and 4 with grooves 26 on its exterior surface to facilitate easy cleaning, such is not essential. A nipple extender 30 may be configured, for example, as shown in Fig. 6 with a single flow conducting passageway 32 which is preferably centrally located in the nipple extender 30. Alternatively, the nipple extender may have multiple flow passageways or be fabricated of a porous or open cell material to provide multiple milk flow channels.

In its broadest aspects, the system comprises a single breast cup 10 and nipple extender 20 which may either be a separate piece or which may be integrally formed with the breast cup as described above. Since separately formed nipple extenders can be removed from the breast cup for easier cleaning, it is currently contemplated that the system may best be produced and marketed in kit form comprising a few breast cups 10 each having a nipple portion length L_{N1}, L_{N2}, L_{N3}, etc. of gradually reducing length as shown in Fig. 5. Similarly, the nipple extenders 20 may be included in a series of different lengths L_{E1}, L_{E2}, L_{E3}, etc. (Fig. 3) to accommodate mothers having nipples of different natural lengths.

A mother who has difficulty in nursing her infant may then first select the breast cup 10 having the longest length nipple portion 14 which may be used with a nipple extender 20 of length correlated with the length of the nipple portion 14 of the cup 10 and with the natural length of the mother's nipple such that, in use, the nipple extender will occupy most and preferably substantially all space in the nipple receiving portion 14 which is not occupied by the

mother's nipple. As the infant gets used to suckling with the longer nipples, the mother may gradually reduce the length of nipple to which the infant is exposed by changing cups and nipple extenders.

While the nipple extenders 20 and 30 preferably are retained in the nipple receiving portions 14 of the cup 10 by frictional engagement so that the extenders can be easily removed from the cups for cleaning, one or more annular protuberances, which may take the form of a collar or collars 34 as seen in Fig. 6, may be formed on the exterior annular surfaces of the nipple extenders 20 to assist in retaining the nipple extenders 20 in the nipple portions of the cups 10. Mating recesses or grooves may be formed in the interior of the nipple receiving portions 14 of the cups 10 to receive the protuberances so long as a suitable milk flow path is maintained. The protuberance need not take the form of an annular collar 34 as depicted Fig. 6. The protuberance may even take the form of a spiral male screw thread engageable with the interior surface of the nipple portion 14 of the breast cup 10. Simple sliding engagement of the nipple extenders 20, 30 with the interior surface of the nipple receiving portions 14 of the cups 10 is, however, presently preferred.

Persons skilled in the art will readily appreciate that various additional modifications can be made from the presently preferred embodiments thus the scope of protection is intended to be defined only by the limitations of the appended claims.